

Defender®

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"Today, the U.S. has the most well-trained fighting force in the world," says Dr. James T. Blake, the leader of the Army's Program Executive Office for Simulation, Training and Instrumentation. "And we must continue to maintain this edge in even more innovative ways." The Army's ultimate training goal is to emulate the operational environment in the training domain "as realistically as possible, while stressing the soldier as close to actual combat as we can."

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D-DAY: A GREAT LOGISTICAL CHALLENGE

TWENTY YEARS AFTER COMMANDING WHAT UNITED PRESS WAR CORRESPONDENT VIRGIL PINKEY DESCRIBED AS “THE GREATEST AMPHIBIOUS ASSAULT OF ALL TIME,” SUPREME ALLIED COMMANDER AND FORMER U.S. PRESIDENT DWIGHT DAVID EISENHOWER WALKED THE BEACHES OF NORMANDY WITH CBS CORRESPONDENT WALTER CRONKITE AND CALLED IT THE DAY “THE WEALTH OF THE NATIONS” POURED FORTH ON THE SANDS OF NORTHWEST FRANCE.

While the plans for Operation Overlord — the code name for the D-Day landings on June 6, 1944 — were begun early in 1943, Carl Shilleto and Mike Tolhurst wrote in **D-Day and the Battle for Normandy**: “During the first few months of 1944 the south of England was transformed into a giant military base.... Headquarters staff officers carefully coordinated and recorded the movement of every unit to ensure that the planned movement and embarkation of the fighting troops and the transfer of their vital supplies would run with clockwork precision. With an initial assault force of over 170,000 men and 20,000 vehicles, it was a logistical nightmare for the planners involved.”

The force included more than 1,000 supply ships, some 4,100 landing ships and warships from the British, Canadian, Dutch, Free French, Greek, Norwegian, Polish and U.S. navies, and some 11,000 aircraft. The landings were conducted primarily by American, British, Canadian and Free French troops on the beaches code-named Omaha, Juno, Utah, Sword and Gold and the clifftop strongpoint at Pointe du Hoc four miles west of Omaha Beach.

McDougald “Doug” Werner, a United Press war correspondent who hit Omaha Beach with a 9th Air Force engineering unit nearly five hours after the initial landings, wrote, “We were nearly an hour moving down a stretch of sand less than a mile long but it was an hour which other men agreed was an hour of horror. That was particularly true of men who were new at this sort of thing like myself. Others took it more or less casually, like the medics and the boys who moved equipment. Then there were the two lads who were near a trailer when a mortar shell hit. It set it afire. They climbed onto a truck, got an extinguisher and put out the blaze just before it reached the store of ammunition.”

By shortly after 8 p.m. on June 6, the allies had secured a beachhead 10 miles deep and 60 miles wide, opening the way for the rest of the allied invasion force — and their supplies — to be brought ashore. CBS correspondent Charles Collingwood, broadcasting from Omaha Beach



The Omaha beachhead in mid-June 1944. U.S. Coast Guard photo.

that night, reported, “It’s an absolutely incredible and fantastic sight. The beach is lined with men and materials and guns, trucks, vehicles of all sizes.”

Making sure the materials made it from the beaches to the combat troops at the front was the work of men like Andrew T. McNamara and the 476th Quartermaster Group at Utah Beach. McNamara, then a colonel and chief quartermaster for the First Army and later a lieutenant general, recalled in a 1994 issue of the **Quartermaster Professional Bulletin**, “Supplies were taken up into front lines and unloaded directly to user units, with the bulk of the missions being completed under shellfire and strafing.... When resistance was encountered, the truck drivers found themselves taking part in the fighting ... and shared the same rigors and dangers as did the divisional troops.”

According to the Eisenhower Archives website, more than 850,000 men, 148,000 vehicles and 570,000 tons of supplies had been landed on the beaches by the end of June 1944. It was the greatest logistical accomplishment in history. And it was successfully conducted without the aid of a single computer.

When Eisenhower and Cronkite walked the beaches of Normandy for a televised 1964 anniversary special, Eisenhower commented, “It was just unbelievable, the materiel. ... I used to think of it in the manhours, the people, the wealth of the nations that was pouring forth.”

How things have changed and are continuing to change just three generations after D-Day is only part of what this issue of **Defender** is about. It is also a tribute to men like those of the 476th — and the two lads Doug Werner wrote about — who casually and efficiently work to solve the age-old problems of logistical support, now known as Mission Support.

— Editor



Gen. Benjamin S. Griffin
Commander, Army Materiel Command

FOR U.S. ARMY MATERIEL COMMAND WELL-BEING OF TROOPS IS MOST IMPORTANT JOB

Heading AMC is Gen. Benjamin S. Griffin, a “soldier’s soldier” whose task of fully transforming how the Army sustains and supports its troops may be the most daunting challenge since Gen. George C. Marshall organized the massive U.S. buildup before and during World War II.

The secret is out about U.S. Army Gen. Benjamin S. Griffin. He comes from a Navy family. Dad was a sailor. Three uncles were sailors. So there were mixed emotions in the Griffin family in July 1970 when 2nd Lt. Ben Griffin graduated from Officer Candidate School at Ft. Benning. Yet once a fourth star was pinned onto his shoulder, you would think the sailors in the Griffin clan would cool the service rivalry a bit and, at the very least, concede that Ben had done pretty well for himself.

It was not to be. Fast forward more than three decades. When Gen. Griffin strode up to the podium as the commanding general of Army Materiel Command — to provide commencement remarks for the Middlesex High School graduating class of Saluda, Va., which included a granddaughter of one of his Navy uncles — surely the family day of forgiveness had arrived. Responsible for supporting hundreds of thousands of pieces of equipment — from M1A1 tanks and Bradley fighting vehicles, to Chinook and Apache helicopters, to bullets, bombs and rations — by any measure Gen. Griffin had reached a pinnacle of success. “Then I overheard my uncle talking to someone about me,” Gen. Griffin recalled with a wry smile. “And he was saying, ‘I told him he should have joined the Navy!’”

To be sure, this native son of Virginia has done very well for himself indeed, and more importantly, he has done well for his nation and his service. As the U.S. retools to fight the war on terrorism, Gen. Griffin, a “soldier’s soldier,” is charged with the immense task of fully transforming how the Army sustains and supports its troops, a challenge surpassed perhaps only by that faced by Gen. George C. Marshall, who organized the massive U.S. buildup before and during World War II. Armed with Gen. Griffin’s wealth of combat experience as a brigade and division commander, today the AMC is redefining the business of supporting soldiers in the field of combat. As the general and others in the command put it, “If a soldier shoots it, drives it, flies it, wears it or eats it, AMC provides it.”



(Top) The 3rd Battalion, 7th Field Artillery Regiment, 25th Infantry Division (Light) won the 2005 Phoenix Trophy, the DoD’s highest maintenance award, for its performance of duty during combat operations in Afghanistan.

(Bottom) Soldiers check an AH-64D Apache Longbow helicopter during phase maintenance at a logistical staging area.

Photos courtesy U.S. Army.



Soldiers from the 101st Aviation Regiment perform maintenance on an AH-64D Apache at Contingency Operating Base Speicher, Iraq. U.S. Army photo.

Today, more than 50,000 soldiers and civilians, including 10,000 scientists and engineers, comprise the Army's premier provider of materiel readiness. With their "faces to the field" via brigade- or battalion-sized field support units in Iraq, Afghanistan, Kuwait, Qatar, Germany, Korea, and Fort Hood and Fort Bragg in the United States, AMC provides day-to-day equipment and supplies with increasing efficiency "down to the last tactical mile" of the logistics tail. The command covers technology and materiel development, acquisition support, logistics power projection, contingency contracting and sustainment for the most formidable ground fighting force in the world. It operates the Army's research, development and engineering centers, depots, arsenals and ammunition plants across a swath of facilities in 38 nations and 45 U.S. states.

Under Gen. Griffin's leadership, the link between the providers and the users of Army equipment has become a

far more sturdy bridge. Today, AMC is laser focused on maximizing the benefits of the Reset program, designed to rapidly repair systems damaged in combat and return them to the front. The command has fully embraced the most contemporary process improvement tools, including Lean and Six Sigma. It has established subordinate life cycle management commands responsible for cradle-to-grave support of every piece of equipment fielded by the Army: Aviation and Missile Command for missiles and aviation; Tank-automotive and Armaments Command for ground support and soldier systems; Communications-Electronics Command for command, control, communications, intelligence and electronic warfare systems; Joint Munitions Command for munitions; and the Chemical Materials Agency to safely store and destroy stockpiles of chemical weapons. "There is no shortage of motivation," Gen. Griffin says of the AMC team. "If somebody makes something, or

services something that goes to war, they know that their actions ultimately will benefit our own sons and daughters.”

For most of his career, Gen. Griffin has been on the receiving end of AMC’s largesse. His overseas assignments included a tour of duty in Korea as a company commander and two tours in Germany in the 8th Infantry Division, where he commanded a mechanized infantry battalion. He has served as the assistant division commander for support, 1st Cavalry Division, commander of Joint Task Force 6, and later as the commanding general of the 4th Infantry Division. Prior to his appointment to AMC, he was the Army Deputy Chief of Staff. “My goal is to better link the soldiers in the field with the folks on the development and production side of the house,” the general says.

Gen. Griffin spoke to Defender recently about the transformation of Army logistics and sustainment, about the people who are driving AMC forward, and about the soldiers in combat whose lives depend on their success. Here’s what the general had to say.

DEFENDER: With combat operations in multiple theaters around the world, how important is the Reset program to repair and redeploy damaged equipment?

GEN. GRIFFIN: We are using equipment in the theater five to 10 times more than what it was expected to do. This makes the Reset program critical. We repair what we can in theater, and we ship the items that need heavy lifting back to one of our depots, motor pools or contractor locations for more extensive work. For example, we would typically repair damaged tank tracks in the field. But if a turret was damaged or major body damage had been inflicted, we would ship the unit back home. It’s critical to have the maintenance folks as forward to the assets as possible. We have provided Mobile Parts Hospitals, capable of machining parts, including those out of production, to perform certain repairs in theater. We’ll do whatever it takes to keep the forces moving.

DEFENDER: What are your primary challenges?

GEN. GRIFFIN: Getting completely inside the efficiency of the distribution system down to the last tactical mile. Doing a better job accounting for the property in hand. Working with OEMs [original equipment manufacturers] to obtain parts and keep the right level of supplies. Ensuring that our inventory management leverages technology, from RFID [radio frequency identification] tags to mobile tracking devices. We have to ensure that the quantities in reserve are right on target. We must have total asset visibility into what we have in our possession. In the broader sense, today we

have the challenge to make our systems as interoperable as possible across services and with coalition partners. We have the challenge of technology infusion, to leverage R&D to shape what we’ll look like in the future and “spin out” new technology while it is still emerging. Ultimately, we have to stay in synch with future requirements, training and doctrine.

DEFENDER: What are your top three priorities?

GEN. GRIFFIN: Our number one priority always is to be more agile than ever so we can quickly and effectively supply and support the soldier in the field with the equipment needed, and with the least amount of bureaucracy. Second, we must lean our processes to be more efficient, partnering with the private sector to produce more in less time at less cost and with higher quality. We must be supremely efficient with the money we receive from Congress. Third, we must modernize the use of information technology to better meet the needs of the warfighter, using tracking and condition-based maintenance systems to better understand the location and health of systems across the entire cradle-to-grave life cycle. Through condition-based maintenance, we can better understand how long systems will last before they wear out and which critical components will need repair.

DEFENDER: How have the contemporary process improvement tools helped?

GEN. GRIFFIN: We have nearly 1,200 Six Sigma green belts, 500 black belts and 14 masters. The success stories are endless. We’ve gone inside the depots and streamlined processes all around the world. We keep far better metrics. We have buy-in from senior leadership through the people on the shop floor and the production side. We have a partnership with the University of North Carolina to help train our depot and arsenal commanders. It’s a six-week program, including three weeks with industry. Our commanders then spend a considerable amount of time with the private sector to see what right looks like.



A member of the 25th Infantry Division’s Stryker Brigade Combat Team welds a new antenna brace for a tactical vehicle in the brigade’s Forward Maintenance Company shop at Forward Operating Base Marez, Iraq. Photo courtesy U.S. Army.



M-1 Abrams tanks in various stages of upgrade on the reassembly line at Anniston Army Depot Combat Vehicle Facility. Photo courtesy U.S. Army.

DEFENDER: How have the rapid improvements in information technology helped?

GEN. GRIFFIN: Nothing is moving faster than information technology. The better we are at information technology, the better I can serve the customer. To a great extent, the interoperability of systems is made possible by information technology.

DEFENDER: How has the establishment of the “two-star” Life Cycle Management Commands, which are directly subordinate to AMC, created greater focus on each of the life cycle phases of a system?

GEN. GRIFFIN: Ultimately, having responsibility for the total life cycle creates a great sense of empowerment and accountability, which can generate a tremendous motivating sensation. When people are empowered they make changes. Their ideas are set free. Along with accountability, the Life Cycle Management Commands have the structure and resources to get the job done.

DEFENDER: Last year, AMC stood up another subordinate command, the Army Sustainment Command. Why did the Army establish the command and what are its responsibilities?

GEN. GRIFFIN: We have transformed to a brigade-centric, modular-configured Army and the AMC has realigned its organizational structure to better reach out. The goal is to link the industrial Army with the expeditionary Army to understand and meet their needs. The bottom line is to increase our knowledge of exactly what is required in the

field to provide direct support to the operational combat commanders. It's about communications back and forth. The predecessor command, the Army Field Support Command, managed prepositioned stocks and provided field support. The new Army Sustainment Command is also responsible for Reset program synchronization, distribution and materiel management, and integration with joint and coalition partners. It is our face to the field with personnel assigned to each of our units.

DEFENDER: How can industry help AMC achieve its top goals?

GEN. GRIFFIN: We have a large and growing number of depot partnerships with a great cross section of companies in private industry to cover a wide variety of systems, from tank and helicopter engines to radars and shoulder-fired missiles to small arms. The depots are staffed by aggressive, forward-looking commanders who understand the benefits of industrial partnerships. The goal is to build on the strengths of each partner to create increased value by improving operational efficiency, lowering costs, accelerating innovation, and retaining the critical skills and capabilities. We're not as far along as I want to be, yet we're making good progress. I'm very proud of our people and of our relationship with private industry.

DEFENDER: Across all of this change, AMC must also transform to meet the goals of the Base Realignment and Closure commission. What must AMC do to meet the BRAC requirements in parallel to the command's broader challenges?

GEN. GRIFFIN: Our first priority is to complete the transition of CECOM [Communications-Electronics Command] from Ft. Monmouth, N.J., to Aberdeen Proving Ground, Md. Our second priority is to move AMC headquarters and the U.S. Army Security Assistance Command from Ft. Belvoir [Va.] to the Redstone Arsenal in Huntsville, Ala. These are major moves. Our goal is to ensure that we retain the essence of our capability and meanwhile look out for the people involved in the transition, whether they are staying with AMC or need help to transition to another opportunity. While we move, we will maintain the level of support that our units require.

DEFENDER: What keeps you up at night?

GEN. GRIFFIN: How to better meet the needs of the soldiers on the ground in Iraq and Afghanistan, especially to protect them from IEDs [improvised explosive devices]. We must anticipate their needs and cut through the bureaucracy to get them the piece of equipment they need faster and more efficiently. Nothing is more important than the well-being of our troops on the ground. ■



Vice Adm. Walter B. Massenburg
Commander, Naval Air Systems Command

CONTROLLING COSTS KEEPS NAVAIR FIT TO FLY AND TO FIGHT IN POST 9/11 ENVIRONMENT

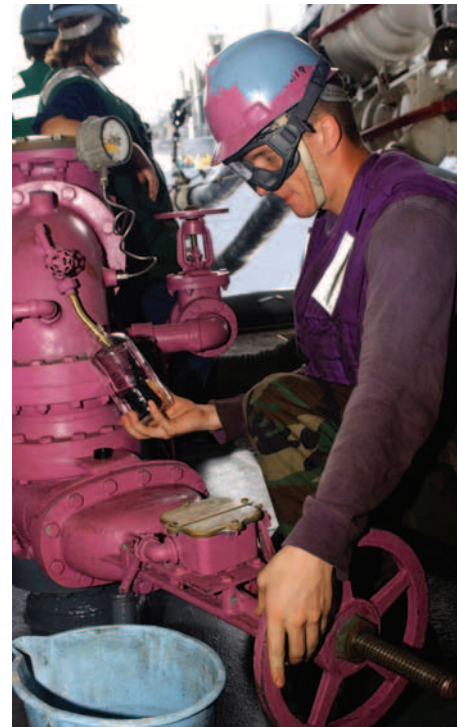
The key to success is getting the 1st, 2nd and 3rd class petty officers in the depots and on the aircraft carriers involved, according to the commander of the Naval Air Systems Command, Vice Adm. Walter B. Massenburg. Accountability for readiness at reduced cost must be the purview of everyone, including the people deployed.

Vice Adm. Wally Massenburg, Commander of the Naval Air Systems Command, is responsible for keeping a fleet of nearly 4,000 naval aircraft “ready for tasking at reduced cost,” the single unifying metric that drives the actions and culture of the command.

While combatant commanders fight physical enemies, NAVAIR, and the broader Naval Aviation Enterprise — the group of commands, including NAVAIR, that procures, services and uses naval aircraft — is fighting an invisible and insidious enemy of its own: cost. In the late 1990s, spiraling operational costs for aviation led the Navy to rethink and restructure how it kept aircraft flying most efficiently. With 15 percent increases in operational costs per year chewing up budgets, looming financial pressures threatened to do more damage to the Navy than any foreign force ever could.

“Everything costs money. You have to accept that basic premise or you will never get to the future,” Vice Adm. Massenburg observes. Two years ago, the Navy’s aviation organization “began to understand itself as a function of costs more fully,” he says. The culture was still evolving from a pre-9/11 era when the closest thing to central metrics were “mission capable” and “fully-mission capable” aircraft. The old metrics created bad habits: cannibalizing equipment from aircraft back home to service aircraft in the field; providing incentives to burn through fuel budgets with a “use it or lose it” mentality. “The idea was simple ... to burn up your fuel budget ... or you wouldn’t get more money next year. It was a culture of consumption,” Vice Adm. Massenburg reflects. Of course, the overall age of aircraft complicates matters. Obsolescence, the need for retrofits and the “vanishing vendor” phenomenon, in which parts suppliers are long out of business decades after the introduction of an aircraft, all drive up costs. As global terrorism demanded a total United States naval response, the need for change was more urgent than ever.

Two critical factors began to shift the culture. First, a single process owner, the Commander, Naval Air Forces, was made responsible for all naval aviation. That established accountability and a natural leader of the Naval Aviation Enterprise, a forum to coordinate interdependent programs and activities among more than 200 operational and support commands. The second factor was establishing the unifying metric,



Aviation Boatswain's Mate Airman Phillip Dionne takes a sample of JP5 fuel to inspect for contaminants during an underway replenishment from the fast combat support ship USS Sacramento to the aircraft carrier USS Carl Vinson. U.S. Navy photo by Mass Communication Specialist 3rd Class Martin S. Fuentes.



A catapult crewmember communicates by hand signals with flight deck personnel while preparing an aircraft for launch from the aircraft carrier USS Carl Vinson during a 2002 training mission off Southern California. U.S. Navy photo by Mass Communication Specialist Airman Chris M. Valdez.



Mission support includes making sure the mail gets to and from the troops. Marines from the 1st Marine Logistics Group load a container of mail aboard a CH-53E helicopter at Camp Al Asad, Iraq. U.S. Marine Corps photo by Cpl. Samantha L. Jones.

“aircraft ready for tasking at reduced cost,” by which all commands within the Naval Aviation Enterprise would be measured. “If you don’t know what your main thing is, you can never improve. You have to have metrics that align people and organizations or you will be inefficient and ineffective forever,” Vice Adm. Massenburg says.

In total, the commands that comprise the Naval Aviation Enterprise, including NAVAIR, are home to more than 180,000 sailors, Marines and civilians, with responsibility for nearly 4,000 aircraft onboard 12 aircraft carriers and a budget of more than \$40 billion. “Until you fully appreciate those numbers, you can never begin to consider all of the ways that you can cut down on cost,” Vice Adm. Massenburg says. The Navy has made amazing progress.

For Operation Enduring Freedom in Afghanistan, the Navy was able to press just 4.5 aircraft carriers into service. For Operation Iraqi Freedom, eight carriers were ready for deployment with their air wings fully operational.

As commander of NAVAIR, an organization of more than 27,000 program managers, depot artisans, engineers, acquisition experts, test pilots and logisticians, Vice Adm. Massenburg continues to wage war against the enemy immediately before him: rising costs. Here’s what he had to say about U.S. naval aviation, about the overriding importance of maintaining readiness, and ultimately about the sailors and Marines who rely on naval aviation to help keep the world free and protected from terrorism.



(Above left) Aviation Ordnanceman 3rd Class Justin Schenkel positions a pallet of 500-pound bombs in the hangar bay of the aircraft carrier USS Carl Vinson. (Above right) Signalman 3rd class Stacy Brown observes signalmen aboard the fast combat support ship USS Sacramento during a replenishment at sea for the Vinson. U.S. Navy photos by Airman Travis M. Burns (left) and Photographer's Mate 3rd Class Ryan Jackson (right).

DEFENDER: How can you really change the embedded culture of a huge organization?

VICE ADM. MASSENBURG: You have to get the 1st, 2nd and 3rd class petty officers in the depots and on the aircraft carriers involved. The people “on the street” have to embrace change. Whether your job is to manage inventory, improve reliability or reduce cycle time, your actions need to square with a total fleet metric. Accountability for readiness at reduced cost must be the purview of everyone, including the people deployed. Now, we have wing commodores in the fleet talking about logistics support. In addition to training, readiness for tasking is about parts, failure modes and resolutions, and it all costs money. We no longer have a “push” economy in the supply chain that moves parts to the field “because we can” that sometimes provides the wrong stuff in a disconnect with the customer. Now we have a “demand-pull” system in which the wing commodores are also responsible for readiness at reduced cost.

DEFENDER: Is the core of the problem really about the aging aircraft themselves?

VICE ADM. MASSENBURG: I hate to hear someone say, “Don’t keep that old aircraft around.” Many times the aircraft isn’t the problem. If you pay attention to what is important, and take care of your stuff, it can last. Of course there is the overall fatigue life of the airframe. Yet the material condition of the engines and systems onboard can add decades. It comes down to how you take care of your systems.

DEFENDER: What types of process improvement tools is NAVAIR using to improve readiness?

VICE ADM. MASSENBURG: AIRSpeed, the implementation of the Naval Aviation Readiness Integrated Improvement Program, uses lean manufacturing, Six Sigma, the basic

theory of constraints and a number of contemporary process improvement tools. We have also organized into “type-model-series” teams to get groups of people focused on specific aircraft. Lean helps us cut cycle time and rids us of some of the unnecessary white space. Six Sigma helps us improve our quality. And the theory of constraints helps us calibrate what is important. Yet toolsets are worthless if they’re not connected to a value stream and the right incentives. Leaning up an irrelevant process amounts to doing something unnecessary quicker.

DEFENDER: How can information technology and network-centric operations help?

VICE ADM. MASSENBURG: It can help by getting the right information to the right person at the right time. It’s not about getting more information to the decision-maker. The guy at the other end is already overloaded with information. It’s about providing the right information. The solution cannot be unbounded.

DEFENDER: To what extent does the need to fight in a joint environment, with the other U.S. services and coalition partners, complicate the challenge?

VICE ADM. MASSENBURG: Since everyone arrives in stovepipes, the faster and better you understand yourself — the better you understand your own service — the more prepared you will be to fight in a joint environment. Our joint and coalition partners are central in the constellation of our nation’s total warfighting capabilities. We are getting better at operating together as a more unified fighting force, yet we are still in the immature stages.

DEFENDER: How can industry help NAVAIR and the Naval Aviation Enterprise pursue the metric of “aircraft and carriers ready for tasking at reduced cost”?

VICE ADM. MASSENBURG: We need depots that are lean and efficient. We need strong partnerships that are credible and accountable. Industry can help in virtually every area. We have to work together to create partnerships that are attractive to everyone.

DEFENDER: NAVAIR and the Naval Aviation Enterprise are proud of the “Boots on the Ground” program, the initiative for leadership to connect directly with the sailors and Marines in the field to better understand how aircraft and systems are being tasked for readiness. What does leadership gain from these experiences?

VICE ADM. MASSENBURG: It’s all about them — the sailors and the Marines. The point is to get the people who provide for the fleet to go out in front of the fleet. It provides an opportunity to talk. You might find out that something seemingly as small as keeping up good air conditioning in the shop is negatively affecting productivity, only to realize that the command structure that provides air conditioning isn’t incentivized to increase readiness. The bottom line is we can invert the focus and see the world through the eyes of our sailors and Marines. Only then can you have a more complete picture. It all starts with, and ends with, supporting our sailors and Marines. ■



A U.S. Navy C-2A Greyhound Carrier Onboard Delivery aircraft from Fleet Logistics Support Squadron 40 lands on the French aircraft carrier Charles de Gaulle during operations in support of Operation Enduring Freedom. U.S. Navy photo by Mass Communication Specialist 2nd Class Jason Scarborough.



Ships from France, Italy, the Netherlands, the United Kingdom and the United States sail in parade formation during Operation Enduring Freedom. U.S. Navy photo by Mass Communication Specialist 3rd Class Alta I. Cutler.



Maj. Gen. Gary T. McCoy
Air Force Director of Logistics Readiness

LOGISTICAL TRANSFORMATION ENABLES SMALLER, MORE FORMIDABLE AIR FORCE FOR 21ST CENTURY

“I don’t want the warfighter to worry about logistics,” says U.S. Air Force Director of Logistics Readiness Maj. Gen. Gary T. McCoy. “I want them to worry about flying and putting bombs on target.”

In the high-tempo days of the Allied strategic bombing campaign during World War II, “the skies were full of bombers,” notes United States Air Force Maj. Gen. Gary T. McCoy. In fact, according to the U.S. Strategic Bombing Survey, more than 2.7 million tons of bombs were dropped by the Allies in nearly 1.5 million sorties. While the immediate effects of the relatively imprecise bombing campaigns were choppy at best, repeated and consistent pressure by hordes of aircraft over a projected period of time ultimately had its desired effect.

Fast forward more than 60 years. Today, with precision strike aircraft and brilliant munitions taking deadly aim at targets, the need for such mass has been reduced by several orders of magnitude. With such fundamental change has come a commensurate 21st century need to streamline and optimize the logistics footprint of a smaller, yet far more formidable force. Shaping the modern-day Air Force logistical transformation is a career “loggie,” the Air Force Director of Logistics Readiness, Maj. Gen. McCoy, whose bottom line is simple: “to put the right part in the right place at the right time.”

While the numbers in the global war on terror are not nearly as huge as those in the Second World War, the Air Force logistics team has nonetheless played a decisive role thus far. It has supported more than 400,000 sorties, transported more than 2 million warfighters from all four services into theater and shipped nearly 700,000 tons of critical supplies. “I don’t want the warfighter to worry about logistics ... I want them to worry about flying and putting bombs on target,” Maj. Gen. McCoy says.

The Logistics Readiness directorate is responsible for organizing, training and equipping 33,000 people worldwide to support the effort. The directorate is responsible for material



Capt. Jessica Devries of the 61st Security Forces Squadron at Los Angeles Air Force Base uses a new firearms training system that projects videos and computer-generated images on screen to simulate various scenarios to help train security forces. U.S. Air Force photo by Paul Testerman.

and equipment management, fuels, vehicle management and operations, distribution, and the agile combat support doctrine and sustainment policy. “Maybe we don’t fly aircraft, yet whenever one takes off, in the figurative sense, we want logistics readiness to be on board,” Maj. Gen. McCoy says.

To streamline its logistics footprint, the Air Force has consolidated its supply centers and leveraged information technology as an “enterprise resource” tool to track spare parts and inventory with far greater asset visibility. The service is more fully utilizing



Senior Airman Tommy Taylor of the 2nd Maintenance Squadron from Barksdale Air Force Base, La., inspects the engine of his B-52 bomber during phase maintenance at a hangar at Anderson Air Force Base, Guam. U.S. Air Force photo by Master Sgt. Val Gempis.

diagnostic and predictive maintenance systems to better forecast when components will fail, to reduce costs and cycle time and not “fly to failure.” The service’s “Expeditionary Logistics for the 21st Century” program, or eLog21, is intended to transform current supply chain processes from commodity-focused organizational stovepipes to a more enterprise-wide non-commodity-specific system with a mandate to cut costs by 10 percent and to increase availability by 20 percent. The service is in the early stages of implementing an Expeditionary Combat Support System, an enterprise-wide resource planning info tech network that will replace 400 legacy logistics systems with 12 integrated modules. The goal is to share best practices and capabilities in product support and engineering; supply chain management; logistics command and control; and maintenance, repair and overhaul.

At the helm of such transformational change is one determined blue-suiter. “If we say we’ll be there in 24 hours, we’ll be there in 24 hours. We intend to have the logistics component arrive either with the warfighters and aircraft or in advance. If we can’t fly, it will not be because of a lack of fuel or spare parts,” Maj. Gen. McCoy says.

Spun up by an Air Force recruiter during the height of the Vietnam War, and with dreams of achieving a college education at the forefront of his mind, the South Carolina native enlisted in the Air Force immediately after high school. While he originally wanted to fly, the war was ratcheting down and the pilot corps was being winnowed. So an Air Force colonel suggested the “next closest thing” — to provide logistics support directly for the airmen and aircraft.

Maj. Gen. McCoy began his career as a “loggie” with the Air Force Communications Service. He served as director of Logistics and Sustainment, Headquarters Air Force Materiel Command, at Wright-Patterson Air Force Base prior to his current assignment. Here’s what Maj. Gen. Gary McCoy had to say about Air Force logistics readiness, about the service’s contributions to the war on terror, and about the men and women who equip the finest air corps in the world.

DEFENDER: How has the Air Force begun to transform the logistics resupply mission for the war on terror?

MAJ. GEN. MCCOY: The biggest change is that we have begun to reach forward in the supply chain, rather than reach back. We put spares in the environment ahead of the curve. We don’t want the aircraft and pilots waiting for the fuel and munitions when they arrive; we want the fuel and munitions waiting for the pilots and aircraft. Today, we pre-position spares as much as possible to reduce the volume we need to travel with when we deploy. As we build operations in theater, the supply chain already is in motion before the forces arrive. We have created expeditionary theater distribution centers in the central commands that can supply body armor, helmets, gas masks and other items needed for combat, instead of having to travel with those items after a conflict has begun. Previously, our model was to stock war readiness spare kits with the most critical parts based on past experience. Now, we’re establishing spare parts requirements based on demand and failure rates.

DEFENDER: To what extent has information technology changed the paradigm?

MAJ. GEN. MCCOY: My firm belief is that you can substitute information for inventory. We have a tremendous capability to forecast. If an aircraft breaks and needs a part, we can use technology to identify where to get it rapidly delivered. New modeling techniques enable us to predict failure modes and rates. Combining historical information and modeling greatly enhances our predictive maintenance capability. Our vision is to increase the volume and quality of sensors on aircraft to trigger the need for a spare part — with that part waiting where and when it is needed. You can leverage information technology to prevent parts from wearing down. We can increase the health of the system by using

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Dr. James T. Blake
Deputy Program Executive Officer for Simulation,
Training and Instrumentation (PEO STRI)

PUTTING POWER OF SIMULATION IN HANDS OF WARFIGHTERS MAKES TRAINING REALISTIC

“Today, the U.S. has the most well-trained fighting force in the world,” says Dr. James T. Blake, the leader of the Army’s Program Executive Office for Simulation, Training and Instrumentation. “And we must continue to maintain this edge in even more innovative ways.” The Army’s ultimate training goal is to emulate the operational environment in the training domain “as realistically as possible, while stressing the soldier as close to actual combat as we can.”

When Jim Blake was a pilot in Vietnam in the United States Army’s 224th Aviation Battalion flying fixed-wing reconnaissance aircraft, training occurred the old-fashioned way: “We just did it,” he says. There were few, if any, simulation systems to create an artificially real world. Soldiers simply practiced with their weapons systems or platforms over a period of time and then went off to war.

Today, as the leader of the Army’s Program Executive Office for Simulation, Training and Instrumentation, or PEO STRI, Dr. James T. Blake operates in a very different world. With high-technology simulation systems pervading the way soldiers prepare to fight in a far more contemporary and network-centric training environment, much of what is real today can be replicated in a simulated world. Soldiers can train for scenarios they never experienced before and, hopefully, might never even have to encounter.

Simply put, PEO STRI puts the power of simulation into the hands of the warfighter. “All but war is simulation,” Dr. Blake asserts. The command and its industry partners have been critical players in the evolution of technologies to vastly improve the realism and situational awareness of the Army’s training capabilities. The command’s field offices have trained more than 129,000 soldiers at four training sites since March 2004, providing high-fidelity training and testing simulation for U.S. soldiers worldwide.

“Today, the U.S. has the most well-trained fighting force in the world,” Dr. Blake says. “And we must continue to maintain this edge in even more innovative ways.” The Army’s ultimate training goal is to emulate the operational environment in the training domain “as realistically as possible, while stressing the

soldier as close to actual combat as we can,” he says. As the U.S. continues to experience and fight in the asymmetric, noncontiguous battlefield, combined with the ever-changing unconventional threat, “we must always reevaluate our training methods and tools in order to be successful,” Dr. Blake says.

With headquarters in Orlando, Fla., PEO STRI has an annual budget of more than \$1.6 billion. In addition to research, development and program management, the command provides life cycle support and operations for most of the Army’s training systems. Integrating training functionality into the earliest stages of weapons development and acquisition can drive a more affordable, and reality-based, experience. Such is the goal of the command’s Warfighter FOCUS (Field Operations Customer Support) program, which is intended to profoundly improve how the Army conducts training by leveraging technology and reducing operational costs, while providing the most realistic training environment possible.

A former Army aviator who periodically finds time to get inside a cockpit, Dr. Blake has flown dozens of fixed- and rotary-wing aircraft, from OV-1Ds to the RU-21 series to C-12s and, of course, the ubiquitous “Huey” helicopters. Appointed to his post in June 2005, the retired Army colonel held several technical and executive positions in industry prior to being named leader of PEO STRI.

Here’s what Dr. Blake had to say about the state of the U.S. Army’s training regimen, about the continual insertion of new technology to create a more realistic training environment, and about the overarching goal of maintaining the U.S. military as the finest fighting force in the world.



The U.S. Army PEO STRI provides interoperable training and testing solutions, program management and life cycle support for the U.S. Army's most advanced training systems, putting the power of simulation into the hands of the warfighters. Photos courtesy Raytheon (left) and U.S. Army (right).

DEFENDER: How has training evolved in the Army through the years?

DR. BLAKE: In the past, we trained in a relatively measured way on a variety of tasks that prepared us to fight a number of different battles. The training aids, devices, simulators and simulations, or TADSS, that we developed and fielded were designed to support this measured approach to standardized training. Today, and into the future, we will be required to provide a much more diverse set of training tools to allow us to focus on a specific type of fight, but at the same time to facilitate our ability to maintain our edge across the full spectrum of military operations.

Our Combat Training Centers have always done an outstanding job of defining, as closely as possible, the continually evolving threats found in combat, then replicating them in training. Of recent importance is the impact of improvised explosive devices on the battlefield. We must be able to replicate this threat throughout our training capabilities and across the training domains so we can prepare our soldiers to recognize, counter and defeat them.

DEFENDER: How has the infusion of state-of-the-art technology changed the way training is delivered?

DR. BLAKE: Throughout our history, we have worked diligently to refresh and update our training aids, devices, simulators and simulations to reflect the full range of capabilities that new technology can provide. What has changed is that the government no longer dictates the path technology will take. That role is now in the hands of the commercial marketplace. As a result, we must partner closely with our

Research and Development Command to determine what commercial technologies can be exploited for our gain and influence technological initiatives early in their development timeline. Our close association with the RDECOM and various universities allows us to determine what we can take advantage of and move into our scheduled updates.

DEFENDER: How will PEO STRI further transform the way training is supported within the Army?

DR. BLAKE: PEO STRI will continue to strive to be the center of excellence for placing the power of simulation into the hands of the warfighter. We are continuously looking at a variety of innovative and dynamic ways to support training. Methods include procuring training services and/or leasing capability instead of procuring product; leveraging commercial gaming technology; and making the training environment more closely replicate the operational environment.

DEFENDER: How will PEO STRI leverage a fully network-centric environment to improve training and provide joint training capabilities?

DR. BLAKE: Our Live, Virtual, Constructive-Integrated Architecture is a program that will use a network-centric environment to enable our existing and future TADSS to fully interoperate with each other as well as with our current and future battle command systems. The LVC-IA, coupled with a networked environment, will enable commanders to train their units in diverse and dispersed locations and environments to better reflect the widely distributed nature of today's battlefield.

DEFENDER: What changes do you envision in the way Army training is conducted, considering the embedded training capabilities of the Future Combat System?

DR. BLAKE: The embedded training solution of the Future Combat System will provide an unprecedented capability for the Army, enabling training anywhere/anytime, and allowing our soldiers to conduct individual, crew and collective training without the need to schedule time on separate dedicated systems. Most significantly, soldiers will have at their fingertips a training capability resident on the systems to achieve training while in theater and deployed. Army leadership recognizes the value and significance of this paradigm shift and has made the embedded training requirements a key performance parameter, directing that embedded training be achieved for the live, virtual and constructive environments for individual, crew and collective skills.

DEFENDER: What are your top three priorities?

DR. BLAKE: My first priority is being responsive to the warfighters. Training is crucial to their success, and we must provide the training enablers to support our soldiers. Second, it is essential to have a variety of training tools and/or capabilities that are realistic and relevant to the threat. The commander's specific training needs will determine which training enablers to use. My third priority is the maturation of standards, including architectural standards. We are integrating applications across the live, virtual and constructive domains, working with operational command and control systems, and becoming net-enabled.

DEFENDER: What are the benefits of better integrating training with other elements of the mission environment, from planning to logistics management to command and control?

DR. BLAKE: Integration of Army training with the mission environment produces better-trained and ready Army units. In a more fiscally constrained Army, integrating the training function at the earliest stages of a weapon system's acquisition process better facilitates the conditions needed to allow for a more affordable capability. Just as a weapon system requires planning to minimize its logistics costs, training systems require planning to minimize their costs. Programs that strive to build training systems that minimize repair, support and test equipment, handling, storage, transportation and operating costs beginning at program inception can achieve significant reductions in their lifetime costs.

Program managers who fully plan and fund training capabilities, as an essential part of their program's supportability analysis, can reduce life cycle costs. They must understand that acquisition costs represent less than 25 percent of a training system's total costs. Actively planning to produce systems with special attention to increasing reliability, maintainability and operational availability over

their projected life can reduce total systems costs at a ratio that can greatly exceed 3-to-1.

DEFENDER: How is your organization supporting the soldiers who are fighting the global war on terror?

DR. BLAKE: Our program manager for field operations continues to support the global war on terror by providing operations and logistics sustainment for our forward deployed TADSS and forward deployed forces. Emplacing an extremely small forward-based personnel footprint of only one government manager and seven contract logistics support personnel, PM field operations has trained more than 129,000 soldiers at four training sites using eight training systems since March 2004. Those trained include warfighters from all four U.S. military services and soldiers from seven coalition nations.

DEFENDER: How are you partnering with industry to make a difference?

DR. BLAKE: PEO STRI and our industry partners have been critical players in the evolution of training technologies to vastly improve the realism and situational awareness of our training capabilities. Together, we will continue to provide the training enablers to support a transformational Army to include the potential for an exportable training capability to train at home-station prior to deployment. We have developed a unique form of cooperation between our four major life cycle contract support contractors that reduces operating and sustainment costs. Partnering provides a framework within which our four major contractors share resources, including personnel, equipment and supplies, to the greatest extent possible at each of the Army's posts, camps and stations. This unique partnership between the government and private industry provides a very cost-effective and responsive soldier training support infrastructure.

DEFENDER: How will the Warfighter FOCUS program, which will begin in the near future, further contribute to mission success?

DR. BLAKE: Warfighter FOCUS intends to shift the "live, virtual and constructive" domain paradigms into a "training support" model. Warfighter FOCUS will reduce TADSS life cycle operations and sustainment costs by leveraging efficiencies gained by economies of scale and by having a highly flexible workforce that provides support only where and when needed. This initiative will result in a single TADSS operations and support contract that maximizes efficiencies by providing a homogeneous network of contract logistics support personnel, equipment and supply processes for the Army's TADSS. Warfighter FOCUS will provide an operationally flexible contract mechanism by which the Army can minimize TADSS life cycle costs based on the needs of an Army engaged in the global war on terror. ■

Maj. Gen. McCoy

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sensors to know when a part is beginning to fail and not push it to failure. It's a lot like taking care of your personal health. The best way is to maintain a healthy lifestyle, get your checkups regularly, and prevent illness. The bottom line is that information technology has progressed very rapidly and it's up to us to take full advantage of it.

DEFENDER: How has the Air Force improved the supply infrastructure within its logistics pipeline?

MAJ. GEN. MCCOY: For years and years, we built layers of supply infrastructure. Essentially, there was too much capacity. In the past, we had five regional supply centers; now we have two. One, based at Langley Air Force Base, is for combat aircraft, supporting the fighters and bombers. The other, based at Scott Air Force Base, is for air mobility, supporting cargo aircraft and tankers. Our vision is to consolidate even further to one center with much more capability. We don't simply store parts anymore; we manage the supply chain. Smart forecasting has helped us reduce inventory. The goal is to be "just in time" with the level of spares and our surge capability.

DEFENDER: What is the Air Force logistics team doing to support the war on terror?

MAJ. GEN. MCCOY: We have personnel deployed in every corner of the world. Last year, our logistics readiness warriors were key to unloading and offloading 697,000 tons of critical supplies and delivering more than 2 million soldiers, sailors, airmen and Marines to locations around the world. Some 3,000 airmen provide combat support to our brethren in the Army and the Marine Corps as vehicle drivers to transport supplies. By definition, our very nature is to provide readiness for the warfighter. We do this with people, processes, systems and materiel. As it relates to the Air Force itself, we have supported the various phases of the air war. Of course, we began the curve with heavy flying to destroy the enemy's air defense infrastructure and keep the skies clear for our ground troops. Our job is to support the air war.

DEFENDER: Among your responsibilities is the need to optimize fuel sources for the Air Force. How important is that among your broader set of responsibilities, and what have you accomplished in this arena thus far?

MAJ. GEN. MCCOY: Decreasing our use and reliance on costly fuels is getting higher and higher in my priority chain every single day. Of course, as a nation, we are highly dependent on oil. And the Air Force is the biggest DoD user of fuel. For our trucks, we are investigating the use of alternative fuels from organic resources. Ethanol is showing some promise. If we can increase the use of ethanol, and simultaneously reduce the use of the vehicle through better



Staff Sgt. Glenn Wright of the 332nd Expeditionary Civil Engineer Squadron repairs an explosive ordnance disposal robot at Balad Air Base, Iraq. U.S. Air Force photo by Airman 1st Class Jessica Fuentes.

planning, we can bring down the aggregate costs of fuel. We are also increasing the use of low-speed vehicles such as electric carts. For aircraft, we are looking at various synthetic fuels. We need to find alternative fuels and better ways to use the fuel we have, not just as a service, but as a nation.

DEFENDER: What is the role of the Logistics Readiness Directorate in establishing Air Force doctrine?

MAJ. GEN. MCCOY: In the area of agile combat support, among our responsibilities is the requirement for opening, operating and closing forward operating locations and air bases. We establish doctrine for all phases of forward basing, from providing security to building runways to being prepared to accept the introduction of forces to providing the logistics infrastructure to support the forces and to sustain the activity over time. We must also be skilled at closing a base. We are in an environment in which you might have to swing your resources quickly to another location or theater. So all aspects of the basing strategy must be considered in our doctrine.

DEFENDER: How do you train Air Force loggies to prepare them for the logistics challenges of today and tomorrow?

MAJ. GEN. MCCOY: We have a formal role to train the logistics team, from purchasing to supply chain management. This is one of the most important things we do. To create a highly mobile, highly expeditionary force, we must train people for all aspects of the support chain. Training used to be conducted in stovepipes with logistics readiness officers overly specialized. Today's logistics readiness officers learn all aspects of the enterprise, from planning to purchasing to supply to transportation and maintenance. It has created a more capable culture. In order to have an integrated supply chain, you must have integrated thinkers. ■

SHARPening the Navy's eyes

INDIANAPOLIS, Ind. – The U.S. Navy has awarded a \$5.6 million contract to Raytheon Company's Raytheon Technical Services Company LLC subsidiary to manage the Shared Reconnaissance Pod Target Cuing System program. SHARP provides U.S. Navy carrier-based air wings with high-resolution, digital tactical air reconnaissance that features advanced day/night and all-weather capability. The TCS upgrade will significantly increase the system's effectiveness by delivering more refined information to the image analyst, reducing the amount of manual labor required to make identifications, and enabling specific targets to be more quickly located so action can be taken. Under the contract, RTSC will manage all aspects of the TCS program, including selection and acquisition of the sensors, design integration, manufacture of an upgraded pod design, and coordination of flight testing for the system on an F/A-18E/F aircraft.

Improved TOW guidance

MCKINNEY, Texas – The U.S. Army Aviation and Missile Command, Huntsville, Ala., recently awarded Raytheon Company two major contracts for production and delivery of Improved Target Acquisition Systems. ITAS is the advanced electro-optic target acquisition fire control

system that guides the Tube-Launched, Optically Tracked, Wire-Guided (TOW) weapon systems to their targets with surgical precision. The first contract, for \$285.4 million, continued Army procurement of the systems and began the U.S. Marine Corps system acquisition process. The most recent award was a \$161.8 million contract for continued production of the systems for both the Army and the Marine Corps. TOW is a "system of systems" that integrates the missile, the launcher and the ITAS to provide the warfighter with the ability to engage and destroy targets from safe distances. ITAS's second-generation forward-looking infrared sensor also provides an around-the-clock long-range reconnaissance and surveillance capability in all weather and battlefield conditions.

Warfighter FOCUS team

ORLANDO, Fla. – The Warrior Training Alliance has announced the addition of key industry leaders and small businesses to its team competing for the U.S. Army's upcoming Warfighter Field Operations Customer Support program. Joining the alliance, established by Raytheon Technical Services Company LLC and Computer Sciences Corp., were Cubic Corp.; L-3 Communications Titan Group; Science Applications International Corp.; Defense Training Systems Support LLC; MPRI Inc., an L-3 company;

Oberon Associates; and UNITECH; as well as more than 20 additional premier small businesses. The Warfighter FOCUS program will provide the service with life cycle contractor support services for training and training devices worldwide, combining support for live, virtual and constructive training into one large support contract — which is expected to save money and to modernize the training experience from a Cold War training model to one more appropriate for today's smaller, faster, more mobile Army fighting the war on terrorism.

Performance based logistics award

HILTON HEAD, S.C. – The Department of Defense has recognized a partnership between the U.S. Navy and Raytheon Company for improving the availability, reliability and mission success of the H-60 armed helicopter targeting system through innovative performance-based logistics. The 2006 Secretary of Defense Performance Based Logistics Award (sub-system level) cited the team effort of Raytheon and the Navy in establishing a benchmark program for maintenance and mission support of the AN/AAS-44(V) forward-looking infrared system for the H-60 Seahawk aircraft. As a result, the Navy's estimated savings and cost avoidance for the program is \$31 million. The award also recognized the combat

readiness of the helicopter sensor and noted the satisfaction of the department in the disciplined execution of the performance-based contract. Along with Raytheon, the award recognizes Naval Air Systems Command, Fleet Readiness Center Southeast, and the Naval Inventory Control Point.

Navy SATCOM support

NORFOLK, Va. – The U.S. Navy has awarded Raytheon Technical Services Company LLC a \$31.5 million contract to provide logistics support for the USC-38 satellite communications system. Under the five-year performance-based logistics contract, RTSC, a subsidiary of Raytheon Company, will provide Mission Support to the Navy's Extremely High Frequency Satellite Program AN/USC-38(V) equipment, including engineering and maintenance; materials and services to evaluate, test, repair, modify, package and ship systems assets; and spares and repairs support.

Cogswell Award

MCKINNEY, Texas – The Defense Security Service has awarded the James S. Cogswell Award for outstanding industrial security achievement to Raytheon Company's facilities in north Texas. The DSS, an agency of the Department of Defense charged with overseeing the national industrial security program,

presents the award annually to recognize consistent superior security ratings and sustained excellence in overall security program management, implementation and oversight. Of nearly 11,000 contractor organizations with appropriate security clearance levels, fewer than one-tenth of one percent are selected to receive the award, which was established in 1966 and named in honor of the late Air Force Col. James S. Cogswell, first chief of the Unified Office of Industrial Security.

F/A-18 threat protection systems

FALLS CHURCH, Va. — Raytheon Company has been awarded a \$93 million contract option for performance-based logistics support of its ALR-67(V)3 radar warning receiver system for the U.S. Navy. The ALR-67(V)3, the state-of-the-art radar warning receiver on U.S. Navy F/A-18E/F carrier-based tactical aircraft, continues to successfully support Navy troops in Middle East operations. The award, from the U.S. Navy's Naval Inventory Control Point in Philadelphia, Pa., includes five annual PBL support periods. The contract scope includes total mission support of fielded ALR-67(V)3 systems, including repairs, spares, reliability and maintainability system improvements, obsolescence management and field installation support.

It includes provisions for additional spares under a separate corresponding production contract with the U.S. Navy's Naval Air Systems Command, Patuxent River, Md.

Submarine Learning Center

PENSACOLA, Fla. — Raytheon Technical Services Company LLC, a subsidiary of Raytheon Company, has been awarded a \$2.5 million task order under an existing U.S. Navy contract to develop curriculum for the Submarine Learning Center. Raytheon will produce Web-based courseware for journeyman and master fire control technician training. The materials will be designed for self-paced delivery in an integrated learning environment.

Robotic road warrior

TUCSON, Ariz. — "Team Scorpion," a group of engineers led by Raytheon's Missile Systems business and its partners — Tucson Embedded Systems, Preferred Chassis Fabrication, iRobot and the University of Arizona — has officially qualified as an "A-track" participant in next year's DARPA Grand Challenge, a robotic vehicle competition conducted by the Defense Advanced Research Projects Agency. Unlike previous events, the 2007 challenge — part of a field test competition aimed at encouraging the development of autonomous

ground vehicle technology that could eventually be used to save American lives on battlefields — calls for robotic vehicles to conduct military-type missions in a mock urban area, completing a 60-mile course through traffic in less than six hours. The vehicles must navigate themselves entirely with on-board technology, using no human- or remote-control.

Net-enabled weapons modeling

TUCSON, Ariz. — Raytheon Company and the U.S. Air Force have successfully demonstrated how battle systems — showing future force capabilities using current and near-term systems — can work together to benefit the warfighter. Sponsored by the Air Force Materiel Command, the Air Force Integrated Collaborative Environment Icebreaker 2006 event focused on net-centric weapons systems. A mix of 11 government and industry sites used current and conceptual netted weapons systems to conduct operations in the Southwest Asia region and explore possible new mission solutions for the warfighter. Raytheon's connection to the network was the only networked industry node demonstrating live/virtual/constructive modeling and simulation resources. Other industry members participated connected to the network as simple clients within the Air Force node at Eglin Air Force Base, Fla.

Decision assistance

INDIANAPOLIS, Ind. — Raytheon Decision Assistance Resource™ or RDAR, a life cycle management tool developed by Raytheon Company, is being integrated into the Obsolescence Management element of Raytheon's ReadLog™ Integrated Solution Sets. This secure Web-based tool provides a system health analysis by calculating the availability down to the lowest sub-assembly possible and is based on supportability drivers such as usage projections, reliability, repairability, sparing, obsolescence and predicted obsolescence. RDAR also includes a scenario generator that allows programs to explore the future through what-if scenarios by changing conditions and data to gauge their impact. This tool has been gaining momentum through its inclusion in several recent performance-based logistics type proposals, its implementation in internal depot repair operations, and its use by government customers. Programs are seeing that RDAR allows them to do more with less. By providing information needed to determine optimal spares pool size, establish defendable budget requirements, and formulate the best supportability decisions, RDAR helps plan for solutions well before problems occur.